STIC
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Search Report
EIC 2800

STIC Database Tracking Number: 244331

To: EPHREM ALEMU
Location: JEF-4B79
Art Unit: 2821
Thursday, November 29, 2007

Case Serial Number: 10/731520

From: MARY MIMS
Location: EIC2800
JEF-4B68 / JEF-4B59
Phone: (571)272-5928

mary.mims@uspto.gov

Search Notes

Dear Examiner Alemu:

Attached are the results of the above requested search. The search was conducted using databases on STN. Please review all of the results.

If you have any questions, or would like a refocused search, please feel free to contact me using the information above.

Thanks,

Mary S. Mims

Mary S. Mims

sira
Search and Information Resources Administration

STIC Search Results Feedback Form

Scientific & Technical Information Center

EIC 2800

Questions about the scope or the results of the search? ***Contact the EIC searcher or contact:***

Jeff Harrison, EIC 2800 Team Leader
571-272-2511, JEF 4B68

Voluntary Results Feedback Form

- *I am an examiner in Workgroup:* ☐ *Example: 2810*
- *Relevant prior art **found**, search results used as follows:*
  - ☐ 102 rejection
  - ☐ 103 rejection
  - ☐ Cited as being of interest.
  - ☐ Helped examiner better understand the invention.
  - ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
  (journal articles, conference proceedings, new product announcements etc.)

- *Relevant prior art **not found:***
  - ☐ Results verified the lack of relevant prior art (helped determine patentability).
  - ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to STIC EIC2800 JEF 4B68

sira
Search and Information Resources Administration

NOV 2 8 RECD

244331

SEARCH REQUEST FORM Scientific and Technical Information Center - EIC2800

Rev. 3/19/2007 This is an experimental format -- Please give suggestions or comments to Jeff Harrison, JEF-4B68, 22511.

Date 11/28/07 Serial # 10/731,520 Priority Application Filing Date 12/9/2003

Your Name EPHREM ALEMU Examiner # ~~ALEMU~~ 74993

AU 2821 Phone 21818 Room 4B79

In what format would you like your results? Paper is the default. PAPER DISK EMAIL

If submitting more than one search request form, please prioritize the searches in order of need.

Where have you searched so far on this case?
Circle: USPAT USPGPUB DWPI EPO Abs JPO Abs IBM TDB
Other:

What relevant art have you found so far? Please attach citations or Information Disclosure Statements.

What types of references would you like? Please checkmark:

Primary Refs ____ Nonpatent Literature ____ Teaching Refs ____
Secondary Refs ____ Foreign Patents ____ Other ____

If this is a "Fast & Focused Search" request, put a checkmark here: ☑
And then please speak in-person immediately with the EIC2800 Technical Information Specialist or with an EIC2800 Searcher.
A "Fast & Focused Search" is completed in 2 hours (maximum). The search must be on a very specific topic and meet certain criteria. The criteria are posted in EIC2800 and on the STIC NPL Web Page at http://uspto-a-pattr-2/siraapps/stic/npl/nplsearch.htm

In your own words, what is the topic, such as the novelty, motivation, utility, or other specific facets defining the desired focus of this search? Please include the concepts, synonyms, keywords, acronyms, registry numbers, definitions, structures, strategies, and anything else that helps to describe the topic. Please attach a copy of the abstract and pertinent claims.

antenna radiator radiating resonat#3
via aperture cavity through hole
substrate dielectic print#3 circuit board PCB

Please focus your search where the antenna is formed within the substrate.

Pg Pub - 20050122265

Staff Use Only
Searcher: M.M.MS
Searcher Phone: 25928
Searcher Location: STIC-EIC2800, JEF-4B68
Date Searcher Picked Up: 11/29/07
Date Completed: 11/29/07
Searcher Prep/Rev Time: 30
Online Time: 95

Type of Search
Structure (#)
Bibliographic ✓
Litigation
Fulltext
Patent Family
Other

Vendors
STN
Dialog
Questel/Orbit
Lexis-Nexis
WWW/Internet
Other

11/29/2007 10/731520 Alemu

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=> d his nofil

     (FILE 'HOME' ENTERED AT 09:15:25 ON 29 NOV 2007)

     FILE 'WPIX' ENTERED AT 09:15:37 ON 29 NOV 2007
L1          6146 SEA ABB=ON  PLU=ON  (ANTENNA?/BI,BIEX OR (RADIAT?/BI,BIEX OR
                 RESONAT?/BI,BIEX)(3A)ELEMENT?/BI,BIEX)(3A)(VIA/BI,BIEX OR
                 APERTURE?/BI,BIEX OR HOLE/BI,BIEX OR THROUGH?/BI,BIEX(W)HOLE/BI
                 ,BIEX)
L2       1113702 SEA ABB=ON  PLU=ON  SUBSTRAT?/BI,BIEX OR DIELECT?/BI,BIEX OR
                 PCB/BI,BIEX OR PRINT?/BI,BIEX(2A)CIRCUIT?/BI,BIEX OR INTERGRAT?
                 /BI,BIEX(2A)CIRCUIT?/BI,BIEX
L3           880 SEA ABB=ON  PLU=ON  L1 AND L2
L4         29782 SEA ABB=ON  PLU=ON  CONDUCT?/BI,BIEX(2A)(VIA/BI,BIEX OR
                 APERTUR?/BI,BIEX OR HOLE/BI,BIEX OR THROUGH?/BI,BIEX(W)HOLE?/BI
                 ,BIEX OR CAVIT?/BI,BIEX)
L5            90 SEA ABB=ON  PLU=ON  L3 AND L4
L6          6426 SEA ABB=ON  PLU=ON  (OMNI?/BI,BIEX OR DIRECTION?/BI,BIEX)(2A)(A
                 NTENNA?/BI,BIEX OR (RADIAT?/BI,BIEX OR RESONAT?/BI,BIEX)(3A)ELE
                 MENT?/BI,BIEX)
L7             3 SEA ABB=ON  PLU=ON  L5 AND L6
                 D IFULLG 1-3
L8             1 SEA ABB=ON  PLU=ON  US20050122265/PN
                 SEL IPC MC
L9        194764 SEA ABB=ON  PLU=ON  (H01L0027-04/IPC OR H01P0011-00/IPC OR
                 H01Q0001-00/IPC OR H01Q0001-36/IPC OR H01Q0001-38/IPC OR
                 H01Q0009-04/IPC OR H01Q0013-08/IPC OR H01Q0023-00/IPC OR
                 H01L0021-70/IPC OR H01L0021-822/IPC OR H01Q0001-48/IPC OR
                 H01Q0009-28/IPC OR H01Q0009-30/IPC OR H01Q0009-40/IPC OR
                 H01Q001-38/IPC OR U11-C18B9/MC OR U14-H03C2A/MC OR V04-Q06/MC
                 OR V04-Q30G/MC OR W02-B07A1C/MC OR W02-B07A3A/MC)
L10           52 SEA ABB=ON  PLU=ON  L5 AND L9
L11           14 SEA ABB=ON  PLU=ON  L10 AND (GROUND?/BI,BIEX(2A)PLANE?/BI,BIEX)

L12           14 SEA ABB=ON  PLU=ON  L11 NOT L8
L13           14 SEA ABB=ON  PLU=ON  L12 NOT L7
                 D L13 IFULLG 1-14
L14           25 SEA ABB=ON  PLU=ON  L10 AND (FREQUENC?/BI,BIEX OR GHZ/BI,BIEX)

L15           16 SEA ABB=ON  PLU=ON  L14 NOT (L7 OR L8 OR L11)
                 D IFULLG 1-16

     FILE 'INSPEC' ENTERED AT 09:41:40 ON 29 NOV 2007

L16            1 SEA ABB=ON  PLU=ON  "MORGANA M A"/AU
                 D IALL
                 E SCHWIRING/AU
                 E SCHWERING/AU
L17           70 SEA ABB=ON  PLU=ON  ("SCHWERING F"/AU OR "SCHWERING F K"/AU)
L18           35 SEA ABB=ON  PLU=ON  L17 AND ANTENNA?
L19            1 SEA ABB=ON  PLU=ON  L18 AND EIGENMODE/TI
                 D IALL
                 SEL CIT

     FILE 'SCISEARCH' ENTERED AT 09:45:32 ON 29 NOV 2007
L20           16 SEA ABB=ON  PLU=ON  "MORGAN M A, 1994, V42, P54,?"/RE
                 D IALL 1-16
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Mary S. Mims EIC 2800 2-5928

11/29/2007 10/731520 Alemu

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     FILE 'WPIX' ENTERED AT 09:49:33 ON 29 NOV 2007
                 D L8 IFULLG
L21           28 SEA ABB=ON  PLU=ON  L5 AND (WIRELESS?/BI,BIEX OR RF/BI,BIEX OR
                 RADIO?/BI,BIEX(W)FREQU?/BI,BIEX)
L22           11 SEA ABB=ON  PLU=ON  L21 NOT (L7 OR L8 OR L11 OR L15)
                 D IFULLG 1-11
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Mary S. Mims EIC 2800 2-5928

L7 ANSWER 2 OF 3 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 1978-E6838A [24] WPIX
TITLE: Panoramic aerial radiating in horizontal plane - has directivity in vertical plane and disc **dielectric** between double cones
DERWENT CLASS: W02
INVENTOR: BOUKO J; SALVAT F
PATENT ASSIGNEE: (CSFC-C) THOMSON CSF
COUNTRY COUNT: 6

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
NL 7713137	A	19780601	(197824)*	NL		
DE 2753180	A	19780615	(197825)	DE		
FR 2372522	A	19780728	(197835)	FR		
US 4143377	A	19790306	(197911)	EN		
DE 2753180	B	19791031	(197945)	DE		
GB 1568132	A	19800529	(198024)	EN		
IT 1090595	B	19850626	(198632)	IT		

PRIORITY APPLN. INFO: FR 1976-36071 19761130
INT. PATENT CLASSIF.:
IPC RECLASSIF.: H01Q0013-00 [I,C]; H01Q0013-04 [I,A]; H01Q0019-00 [I,C]; H01Q0019-06 [I,A]

BASIC ABSTRACT:

NL 7713137 A UPAB: 20050816

The panoramic aerial, radiates in a horizontal plane, and the polar diagram can have a certain amount of directivity in the vertical plane. The aerial is of the double cone type, where the sawn off apices face each other. The aerial is fed from a **conductor via** the tops, which are separated by **dielectric** discs.

Two of the **dielectric** discs (6, 7) are fitted in parallel with the base of the cones and at a given distance from the respective tops. The discs have a given length and thickness. They will alter the propagation characteristics of the energy to achieve a reduction in the phase differences between the centre of the opening and the edges.

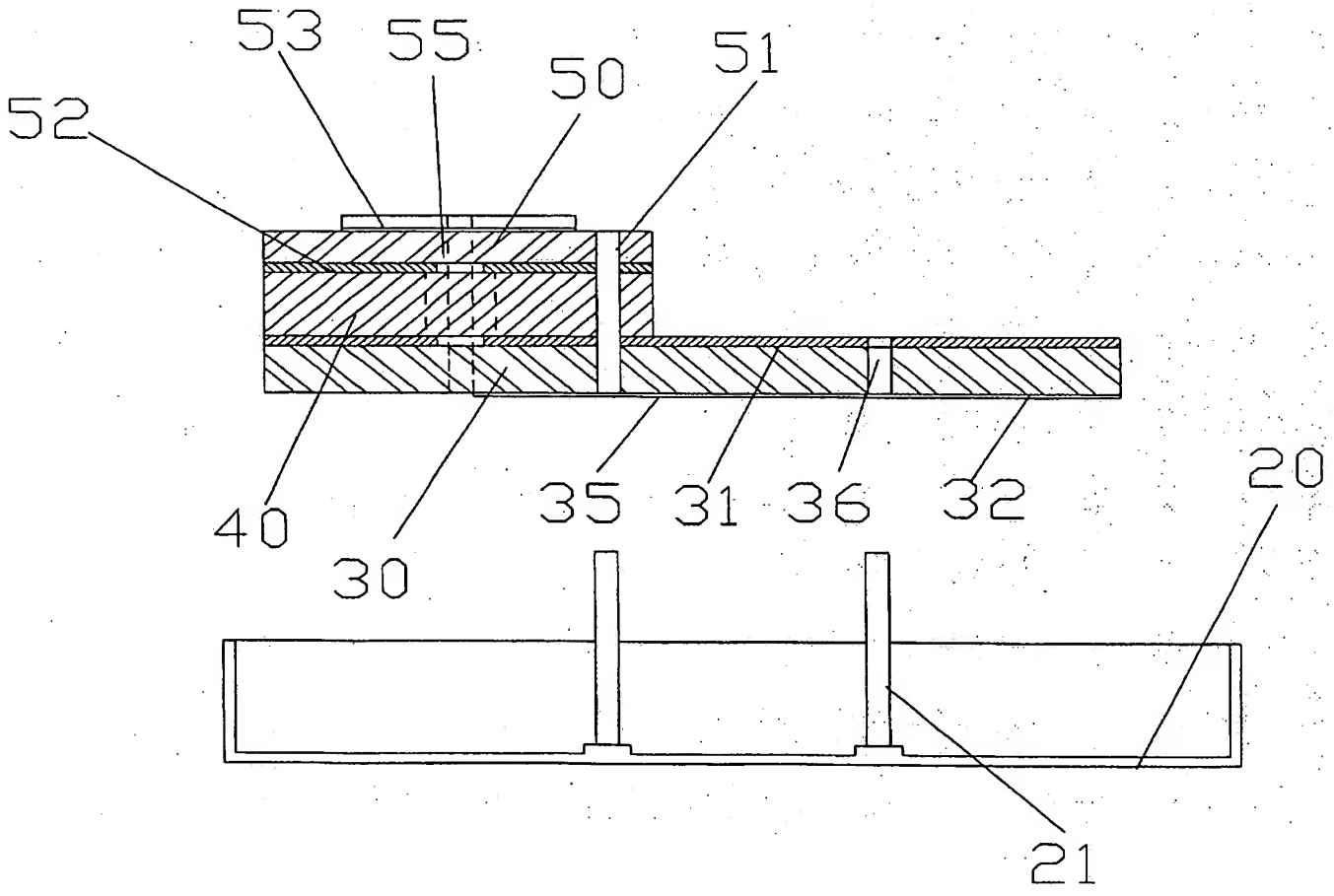
FILE SEGMENT: EPI

L13 ANSWER 5 OF 14 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 2004-095840 [10] WPIX
DOC. NO. CPI: C2004-039391 [10]
DOC. NO. NON-CPI: N2004-076320 [10]
TITLE: **Antenna** has **through-hole** and electric **conductor** to act as outer and inner conductors respectively for coaxial cable structure to form signal path in order to receive and transmit microwave signals
DERWENT CLASS: A85; L03; V04; W02
INVENTOR: KU K; YANG C
PATENT ASSIGNEE: (PROB-N) PRO BROADBAND INC
COUNTRY COUNT: 1

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 6392601	B1	20020521	(200410)*	EN	12	[7]

PRIORITY APPLN. INFO: US 2001-816310 20010326
INT. PATENT CLASSIF.:
IPC RECLASSIF.: **H01Q0009-04** [I,A]; **H01Q0009-04** [I,C]



BASIC ABSTRACT:

US 6392601 B1 UPAB: 20050528

NOVELTY - An intermediate layer (40) arranged between the **ground plane** (52) of **PCB** (30) and patch antenna (50), forms a grounded electrical potential. An electric conductor penetrates to the **PCB** through the intermediate layer and patch **antenna.** A **through-hole** (41) of the intermediate layer acts as outer conductor and electric conductor acts as inner conductor for coaxial cable structure to form signal path to receive and transmit microwave signals.

DETAILED DESCRIPTION - The upper layer side of the **printed circuit** board is covered with a **ground plane** which is made up of electric conductive materials contacting the intermediate layer and in the other side a printed layer is formed with circuit elements. A through-hole in the intermediate layer is formed against a feed hole (33) on the **printed circuit** board. One side of the patch antenna is arranged to contact the intermediate layer and other side is formed with predetermined number of radiating elements. The patch **antenna** has a penetrating **hole** at a position corresponding to the through-hole, to pass the feeding signals to the **radiating elements.** The feed **hole** of **printed circuit** board is a signal feeding point for connecting to the **printed circuit** layer, and feed **hole** of the patch **antenna** is a signal feeding point for connecting to the radiating elements. A filling insulator comprised of air and polytetrafluoroethylene fills the through-hole of the intermediate layer and surrounds the electric conductor. The filling insulator material type, dimension of the **through-hole** and electric **conductor** are selected to provide an appropriate impedance of the coaxial cable structure.

USE - Antenna for receiving and transmitting microwave signals, for industrial applications.

ADVANTAGE - The loss is decreased because the thickness of the intermediate layer is made smaller than the cable length and heat generated is sunk by the intermediate layer quickly. The assembled PC board, intermediate layer and patch antenna are completely finished and then they are sturdily jointed together, to improve the defectiveness of connection between deviated and rotational elements, and this kind of assembly decreases the labor cost. As the intermediate layer is in direct face-to-face contact with the **ground plane** of the patch antenna and circuit board, heat generated by high power microwave signals is effectively and rapidly dissipated through **printed circuit** layer and radiating elements.

DESCRIPTION OF DRAWINGS - The figure shows a diagrammatic sketch illustrating the antenna assembly and fabrication.

Printed circuit board (30)
Feed hole (33)
Intermediate layer (40)
Through-hole (41)
Patch antenna (50)
Ground plane (52)

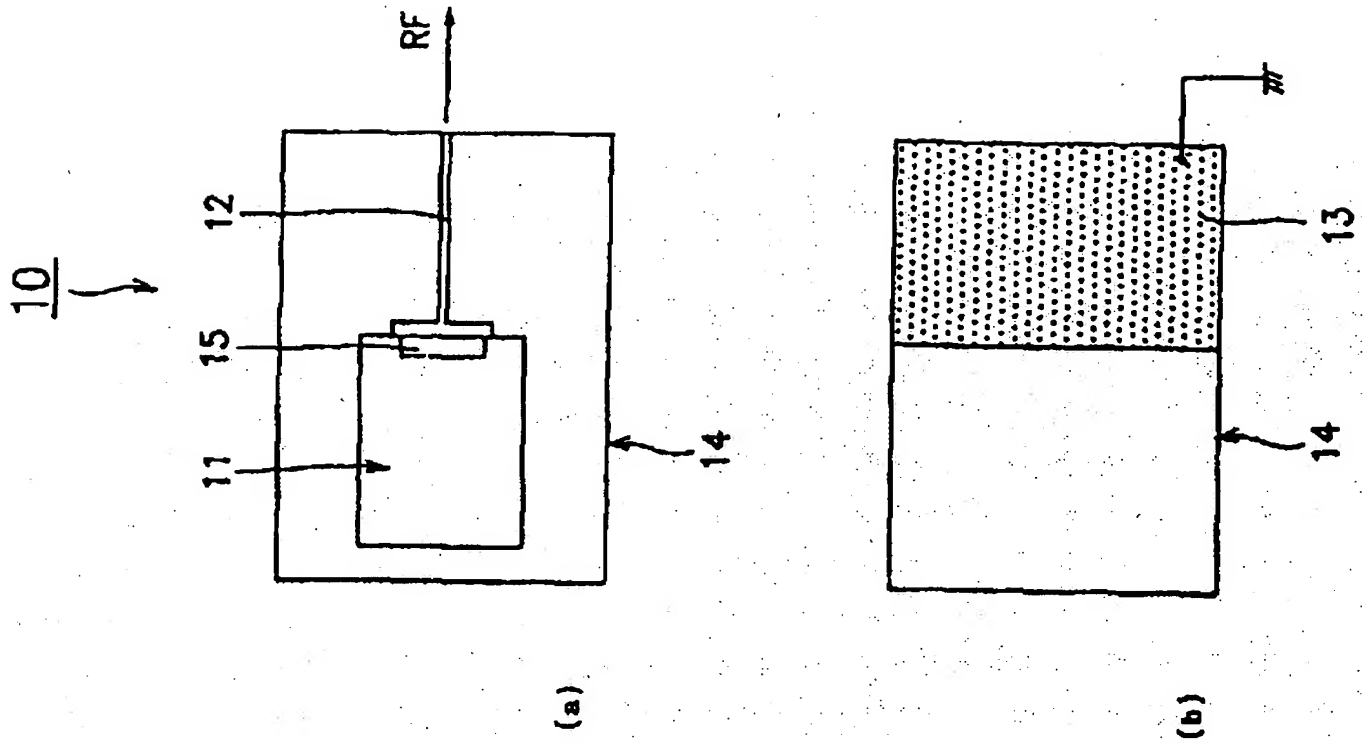
FILE SEGMENT: CPI; EPI
MANUAL CODE: CPI: A04-E08; A12-E; L03-H03
EPI: **V04-Q06**; W02-B07A3

L15 ANSWER 14 OF 16 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 1998-147679 [14] WPIX
DOC. NO. NON-CPI: N1998-117010 [14]
TITLE: Antenna device e.g. for mobile radio communication system - constructed by mounting main antenna unit on mounting **substrate** having transmission line formed on upper surface of mounting **substrate** and has ground electrode formed on back surface
DERWENT CLASS: W02
INVENTOR: BANDAI H; KAMINAMI S; KANBA S; MANDAI H; SUESADA T; TSURU T
PATENT ASSIGNEE: (MURA-C) MURATA MFG CO LTD
COUNTRY COUNT: 20

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
EP 828310	A2	19980311	(199814)*	EN	15	[11]
JP 10145125	A	19980529	(199832)	JA	7	
US 5999146	A	19991207	(200004)	EN		
EP 828310	B1	20060531	(200637)	EN		
DE 69735983	E	20060706	(200648)	DE		
DE 69735983	T2	20061207	(200680)	DE		

PRIORITY APPLN. INFO: JP 1997-63028 19970317
JP 1996-239261 19960910
INT. PATENT CLASSIF.:
IPC ORIGINAL: **H01Q0001-36** [I,A]; **H01Q0001-36** [I,A]; **H01Q0001-36** [I,C]; **H01Q0001-38** [I,A]; **H01Q0001-38** [I,A]; **H01Q0001-38** [I,C]; **H01Q0001-38** [I,C]
IPC RECLASSIF.: **H01Q0001-36** [I,A]; **H01Q0001-36** [I,C]; **H01Q0001-38** [I,A]; **H01Q0001-38** [I,C]; H01Q0011-00 [I,C]; H01Q0011-08 [I,A]



BASIC ABSTRACT:

EP 828310 A2 UPAB: 20060114

The device comprises a main antenna unit which has a base (16) having a **dielectric** material and a magnetic material. A conductor (17) is formed on a surface of the base and inside the base. A feeding terminal (15) is formed on the surface of the base to allow a voltage to be applied to the **conductor via** the feeding terminal.

The ground conductor has either one of a ground electrode formed on a mounting **substrate** on which the main antenna unit is mounted or the ground line of a transmission line via which the voltage is fed to the main antenna unit. The conductor of the main antenna unit is wound helically and the winding cross section of the conductor is rectangular. The winding cross section of the conductor can be circular or elliptic.

ADVANTAGE - Provides small sized antenna in which conductor length is reduced without encountering reduction in gain.

FILE SEGMENT: EPI

MANUAL CODE: EPI: W02-B01B; W02-C03C1C; W02-G02A

L15 ANSWER 15 OF 16 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 1992-400661 [49] WPIX
DOC. NO. NON-CPI: N1992-305517 [21]
TITLE: Planar antenna with ring radiation element - has concentrically formed opening in rectangular radiation element laminated on ground **conductor via. dielectric** layer
DERWENT CLASS: W02
INVENTOR: KURODA S; ONO N; TORIYAMA I
PATENT ASSIGNEE: (SONY-C) SONY CORP
COUNTRY COUNT: 5

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
EP 516303	A1	19921202	(199249)*	EN	23[28]	
JP 04336805	A	19921125	(199302)	JA	7	
JP 04337908	A	19921125	(199302)	JA	8	
US 5371507	A	19941206	(199503)	EN	20[25]	
EP 516303	B1	19970312	(199715)	EN	21[23]	
DE 69218045	E	19970417	(199721)	DE		

PRIORITY APPLN. INFO: JP 1991-110435 19910515
JP 1991-109333 19910514
INT. PATENT CLASSIF.:
MAIN: **H01Q009-04**
IPC RECLASSIF.: **H01Q0001-38** [I,A]; **H01Q0001-38** [I,C]; **H01Q0013-08** [I,A]; **H01Q0013-08** [I,A]; **H01Q0013-08** [I,C]; **H01Q0013-08** [I,C]; H01Q0021-24 [I,A]; H01Q0021-24 [I,C]; **H01Q0009-04** [I,A]; **H01Q0009-04** [I,A]; **H01Q0009-04** [I,C]; **H01Q0009-04** [I,C]

FIG. 7

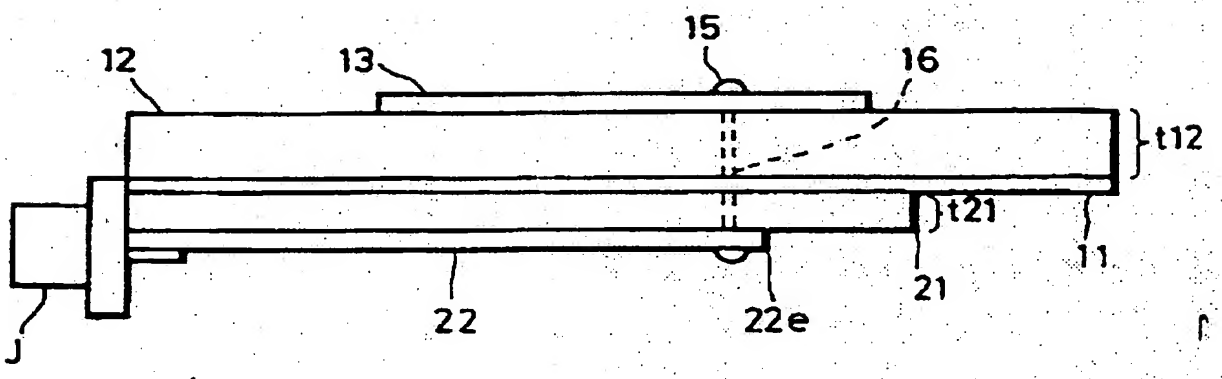
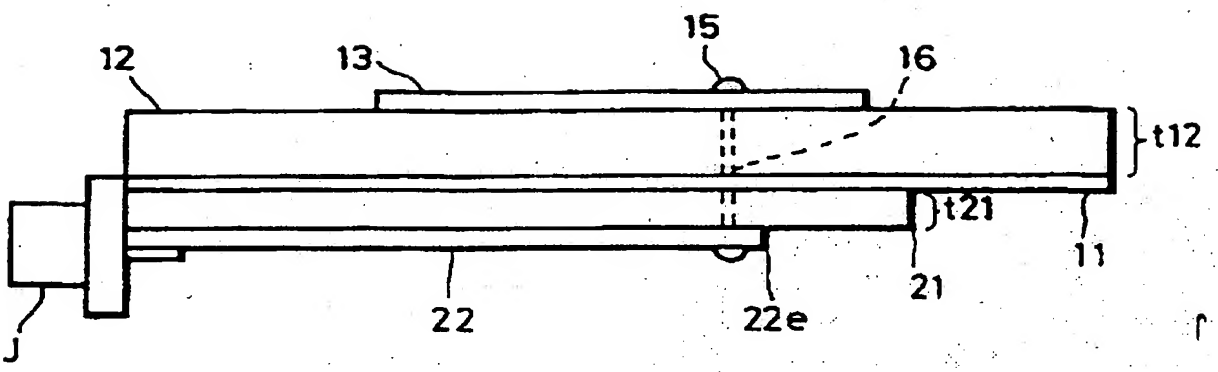


FIG. 7



BASIC ABSTRACT:

EP 516303 A1 UPAB: 20050505

The antenna has a **dielectric** layer (12) laminated on a ground conductor (11). A rectangular radiation element (13) is laminated onto the surface of the **dielectric** layer opposing the ground conductor. A rectangular opening (14) is concentrically formed through the radiation element, so as to provide a ring radiation element. A feed point (15) is disposed near the centre of one side of the opening.

Pref. the feed point is connected via a feed hole (16) to a feed line (22) provided on the surface of the ground conductor opposing the radiation element. The feed line may include a tuning stub (23).

ADVANTAGE - In satellite and mobile communication fields. Suitable for circular polarisation. Can be unitarily formed with communication equipment.

FILE SEGMENT: EPI

MANUAL CODE: EPI: W02-B02A; W02-B03C

L20 ANSWER 8 OF 16 SCISEARCH COPYRIGHT (c) 2007 The Thomson Corporation on STN

ACCESSION NUMBER: 2003:938997 SCISEARCH <<LOGINID::20071129>>
THE GENUINE ARTICLE: 735LB
TITLE: Sleeve monopole on a circular ground-plane
AUTHOR: Shen Z X (Reprint); MacPhie R H
CORPORATE SOURCE: Nanyang Technol Univ, Sch Elect & Elect Engn, Nanyang Ave, Singapore 639798, Singapore (Reprint); Nanyang Technol Univ, Sch Elect & Elect Engn, Singapore 639798, Singapore; Univ Waterloo, Dept Elect & Comp Engn, Waterloo, ON N2L 3G1, Canada
COUNTRY OF AUTHOR: Singapore; Canada
SOURCE: INTERNATIONAL JOURNAL OF NUMERICAL MODELLING-ELECTRONIC NETWORKS DEVICES AND FIELDS, (SEP-OCT 2003) Vol. 16, No. 5, pp. 427-441.
ISSN: 0894-3370.
PUBLISHER: JOHN WILEY & SONS LTD, THE ATRIUM, SOUTHERN GATE, CHICHESTER PO19 8SQ, W SUSSEX, ENGLAND.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 19
ENTRY DATE: Entered STN: 7 Nov 2003
Last Updated on STN: 7 Nov 2003

ABSTRACT:
This paper presents a modal-expansion analysis of a sleeve monopole antenna on a finite ground-plane. Two perfectly conducting plates (one above the monopole and the other under the ground-plane) are introduced to confine the modeling region and to facilitate the modal-expansion analysis. The resulting guided-wave structure is then divided into a number of regions and the electromagnetic field components in each region are expanded into the summation of its modal functions. The surface current distribution on the monopole and the antenna's input impedance and radiation pattern are obtained by finding the expansion coefficients through matching the tangential field components across the regional interfaces. Calculated results by the modal-expansion method agree well with measured results for the return loss of a sleeve monopole fed through a circular ground-plane by a coaxial probe. Numerical results for the surface current distribution, input impedance, and radiation pattern of a sleeve monopole on a circular ground plane are presented and discussed.

CATEGORY: ENGINEERING, ELECTRICAL & ELECTRONIC
SUPPLEMENTARY TERM: monopole antenna; sleeve monopole; finite ground-plane; modal-expansion method
SUPPL. TERM PLUS: ANTENNAS
REFERENCE(S):

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	ARN PG (RPG)	Referenced Work (RWK)	
ABRAMOWITZ M	1965			HDB MATH FUNCTIONS	
BALANIS C A	1982			ANTENNA THEORY ANAL	
BARDEEN J	1930	36	1482	PHYS REV	
FELSEN L B	1973			RAD SCATTERING WAVES	
KING R W P	1971			TABLES ANTENNA CHARA	
KING R W P	1956			THEORY LINEAR ANTENN	
KUHN E	1973	27	511	AEU-ARCH ELEKTRON UB	
MARCUVITZ N	1951			WAVEGUIDE HDB	
MEIER A S	1949	37	609	P IEEE	
MITTRA R	1971			ANALYTICAL TECHNIQUE	
MORGAN M A	1994	42	54	IEEE T ANTENN PROPAG	<--

11/29/2007 10/731520 Alemu

POGGIO A J	1966	14	643	IEEE T ANTENN PROPAG
RICHMOND J H	1984	32	1282	IEEE T ANTENN PROPAG
SHEN Z X	1996	31	1037	RADIO SCI
SHEN Z X	1996	44	1584	IEEE T ANTENN PROPAG
SHEN Z	1998	2	1726	IEEE AP S INT S
TAYLOR J	1950			THESIS HARVARD U CAM
THIELE G A	1975	23	62	IEEE T ANTENN PROPAG
WEINER M M	1987	35	488	IEEE T ANTENN PROPAG

Mary S. Mims EIC 2800 2-5928

L20 ANSWER 11 OF 16 SCISEARCH COPYRIGHT (c) 2007 The Thomson Corporation on STN

ACCESSION NUMBER: 2001:240143 SCISEARCH <<LOGINID::20071129>>
THE GENUINE ARTICLE: 411HB
TITLE: Numerical analysis of sleeve monopole in parallel-plate waveguide
AUTHOR: Chen Z N (Reprint); Hirasawa K; Wu K
CORPORATE SOURCE: Natl Univ Singapore, Ctr Wireless Commun, Singapore 0511, Singapore (Reprint); Univ Tsukuba, Inst Informat Sci & Elect, Tsukuba, Ibaraki 305, Japan; Ecole Polytech, Polygrames Res Ctr, Montreal, PQ H3C 3A7, Canada
COUNTRY OF AUTHOR: Singapore; Japan; Canada
SOURCE: INTERNATIONAL JOURNAL OF RF AND MICROWAVE COMPUTER-AIDED ENGINEERING, (MAR 2001) Vol. 11, No. 2, pp. 86-98. ISSN: 1096-4290.
PUBLISHER: JOHN WILEY & SONS INC, 605 THIRD AVE, NEW YORK, NY 10158-0012 USA.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 37
ENTRY DATE: Entered STN: 30 Mar 2001
Last Updated on STN: 30 Mar 2001

ABSTRACT:
A monopole with double sleeves, which consists of a resonant loading and a conventional sleeve monopole, is experimentally investigated. The loaded monopole is put vertically in a parallel-plate waveguide and driven by a coaxial feeder. The new structure exhibits a remarkably broad impedance bandwidth. In this paper, a modal expansion technique is used to numerically evaluate the impedance characteristics of the monopole by modeling the fields between the plates using cylindrical harmonic functions. A Fourier least-square integration is applied to finding the expansion coefficients by the boundary and continuity conditions. Prior to modeling the proposed sleeve monopole, the developed analysis scheme is examined for its convergence and accuracy. Calculated results are validated by the measurements. For the optimum design at 5.8 Ghz, we investigate the effects of the structure parameters on the impedance characteristics. (C) 2001 John Wiley & Sons, Inc.

CATEGORY: COMPUTER SCIENCE, INTERDISCIPLINARY APPLICATIONS; ENGINEERING, ELECTRICAL & ELECTRONIC
SUPPLEMENTARY TERM: eigenmode expansion method; parallel-plate waveguide; sleeve monopole; waveguide transition; broadband design
SUPPL. TERM PLUS: FED DIELECTRIC RESONATOR; THICK GROUND PLANE; WAVE-GUIDE; SLOT ANTENNA; PROBE; CAVITY

REFERENCE(S):

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	ARN PG (RPG)	Referenced Work (RWK)
AN H	1994	30	2086	ELECTRON LETT
ANDO M	1987	70	495	IEICE T JAPAN J B
ANDO M	1988	36	1675	IEEE T ANTENN PROPAG
BIALKOWSKI M E	1986	34	937	IEEE T MICROWAVE THE
BIALKOWSKI M E	1995	43	344	IEEE T MICROW THEORY
BIALKOWSKI M E	1984	38	306	AEU-ARCH ELEKTRON UB
BIALKOWSKI M E	1993	41	1126	IEEE T MICROW THEORY
BIALKOWSKI M E	1991	1	211	IEEE MICROW GUIDED W
BIALKOWSKI M F	1985	39	190	AEU
CHEN Z N	1998	84	529	INT J ELECTRON
CHEN Z N	1999		1244	IEEE ANT PROP S ORL
CHEN Z N	1998		1730	IEEE AP-S

CHEN Z N	1999		732	AS PAC MICR C SING D	
DAVIS P W	1997	45	1123	IEEE T ANTENN PROPAG	
GOTO N	1980		43	AP8057 IECE	
HADDAD P R	1994	30	1106	ELECTRON LETT	
HARRINGTON R F	1961			TIME HARMONIC ELECTR	
JAREM J M	1991	39	444	IEEE T MICROW THEORY	
KAKLAMANI D I	1992	12	185	ELECTROMAGNETICS	
KEAM R B	1993	41	516	IEEE T MICROW THEORY	
KISHK A A	1989		6	IEEE ANTENNAS PROPAG	
KRAUS J D	1988			ANTENNAS	
LEUNG K W	1999	47	1113	IEEE T MICROW THEO 1	
LEUNG K W	1998	46	1242	IEEE T ANTENN PROPAG	
LONG S A	1983	31	406	IEEE T ANTENN PROPAG	
MORGAN M A	1994	42	54	IEEE T ANTENN PROPAG	<--
MORGAN M A	1990	38	1130	IEEE T ANTENN PROPAG	
POGGIO A J	1966	14	643	IEEE T ANTENN PROPAG	
QI S X	1998	46	1767	IEEE T MICROW THEO 1	
SASAZAWA H	1988	36	1221	IEEE T ANTENN PROPAG	
SHEN Z X	1996	44	1584	IEEE T ANTENN PROPAG	
STUTZMAN W L	1981			ANTENNA THEORY DESIG	
TOMASIC B	1988	36	449	IEEE T ANTENN PROPAG	
TOMASIC B	1988	36	463	IEEE T ANTENN PROPAG	
TOMASIC B	1987	35	1307	IEEE T AP	
WANG T	1995			IEEE MICR THEOR TECH	
WILLIAMSON A G	1973	9	218	ELECTRON LETT	

L28 ANSWER 10 OF 23 INSPEC (C) 2007 IET on STN

ACCESSION NUMBER: 2001:6805050 INSPEC
DOCUMENT NUMBER: B2001-02-5270D-051
TITLE: Switched fragmented **aperture antennas**
AUTHOR: Maloney, J.C.; Kesler, M.P.; Lust, L.M.; Pringle, L.N.; Fountain, T.L.; Harms, P.H.; (Signature Technol. Lab., Georgia Tech. Res. Inst., Atlanta, GA, USA), Smith, G.S.
SOURCE: IEEE Antennas and Propagation Society International Symposium. Transmitting Waves of Progress to the Next Millennium. 2000 Digest. Held in conjunction with: USNC/URSI National Radio Science Meeting (Cat. No.00CH37118), vol.1, 2000, p. 310-13 vol.1 of 4 vol. xi+2359 pp., 3 refs.
ISBN: 0 7803 6369 8
Price: 0 7803 6369 8/2000/$10.00
Published by: IEEE, Piscataway, NJ, USA
Conference: IEEE Antennas and Propagation Society International Symposium. Transmitting Waves of Progress to the Next Millennium, Salt Lake City, UT, USA, 16-21 July 2000
Sponsor(s): Agilent Technol.; Hewlett-Packard; Kennecott Utah Copper; L-3 Commun.; MOOG Inc; Motorola; Raytheon Syst
DOCUMENT TYPE: Conference; Conference Article
TREATMENT CODE: Application; Practical; Experimental
COUNTRY: United States
LANGUAGE: English
ABSTRACT: This paper introduces a reconfigurable aperture concept derived from fragmented aperture design where the configuration of the fragmented aperture may be switched by the user to obtain different functionalities. A fragmented **aperture antenna** is a patchwork of discrete conducting and **dielectric** units distributed over the specified aperture. The arrangement of the units is determined using an efficient, multistage procedure that incorporates the genetic algorithm for optimization and the finite-difference time-domain method for the electromagnetic computation. Typically, the criterion for optimum performance has been broadband gain at a particular angle. The resulting antennas contain isolated scattering structures that are fragmented in appearance
CLASSIFICATION CODE: B5270D Antenna arrays; B0260 Optimisation techniques; B0290Z Other numerical methods
CONTROLLED TERM: finite difference time-domain analysis; genetic algorithms; microstrip antenna arrays
SUPPLEMENTARY TERM: switched fragmented aperture antennas; reconfigurable aperture; fragmented aperture design; discrete conducting units; discrete dielectric units; multistage procedure; genetic algorithm; optimization; finite-difference time-domain method; electromagnetic computation; broadband gain; isolated scattering structures; antenna array; in-band measured antenna pattern

L28 ANSWER 17 OF 23 INSPEC (C) 2007 IET on STN

ACCESSION NUMBER: 1994:4836035 INSPEC
DOCUMENT NUMBER: B1995-01-5270B-015
TITLE: Axial slot antenna on an anisotropic **dielectric**-coated circular cylinder
AUTHOR: Wu, X.-B.; (Res. Inst. of Radiowave Propagation, Henan, China), Ren, W.
SOURCE: IEE Proceedings-Microwaves, Antennas and Propagation (Dec. 1994), vol.141, no.6, p. 527-30, 11 refs.
CODEN: IMIPEP, ISSN: 1350-2417.
SICI: 1350-2417(199412)141:6L.527:ASAA;1-Q
Price: 1350-2417/94/$7.50+0.00
DOCUMENT TYPE: Journal
TREATMENT CODE: Theoretical
COUNTRY: United Kingdom
LANGUAGE: English
ABSTRACT: This paper presents an analytical solution of an axial slot antenna on a conducting circular cylinder coated with an anisotropic material in terms of the series of wave functions for anisotropic media. This solution is formally similar to the solution of an axial slot antenna on a conducting elliptic cylinder with an isotropic **dielectric** coating. In the anisotropic **dielectric** coating, and in the exterior free space region, the fields are expanded by the wave functions in anisotropic media and the well known wave functions in isotropic media, respectively. Numerical results for the far-field radiation patterns and the **aperture conductance** against coating thickness for different anisotropic media are presented for the transverse electric (TE) and transverse magnetic (TM) polarisations. Numerical results for the gyrotropic type media are used to check our calculations, and those for general anisotropic media are presented to provide references for future computations by using other methods, respectively
CLASSIFICATION CODE: B5270B Single antennas; B5260 Antenna theory
CONTROLLED TERM: antenna radiation patterns; **aperture antennas**; **dielectric**-loaded antennas; numerical analysis; slot antennas; wave functions
SUPPLEMENTARY TERM: axial slot antenna; anisotropic dielectric-coated circular cylinder; analytical solution; conducting circular cylinder; wave functions; anisotropic media; isotropic media; numerical results; far-field radiation patterns; aperture conductance; coating thickness; transverse electric polarisation; transverse magnetic polarisation; gyrotropic type media

L28 ANSWER 20 OF 23 INSPEC (C) 2007 IET on STN

ACCESSION NUMBER:	1990:3589411 INSPEC
DOCUMENT NUMBER:	B1990-023313
TITLE:	Radiation from an aperture on a coated cylinder: numerical and experimental results
AUTHOR:	Fournier, M.A.; (Electron. Serge Dassault, St. Cloud, France), Tabbara, W.; Beaulieu, L.
SOURCE:	AP-S International Symposium 1989. 1989 International Symposium Digest: Antennas and Propagation (Cat. No.CH2654-2/89), 1989, p. 1410-13 vol.3 of 3 vol. x+1754 pp., 3 refs. Price: CH2654-2/89/0000-1410$01.00 Published by: IEEE, New York, NY, USA Conference: AP-S International Symposium 1989. 1989 International Symposium Digest: Antennas and Propagation (Cat. No.CH2654-2/89), San Jose, CA, USA, 26-30 June 1989 Sponsor(s): IEEE
DOCUMENT TYPE:	Conference; Conference Article
TREATMENT CODE:	Theoretical; Experimental
COUNTRY:	United States
LANGUAGE:	English
ABSTRACT:	The authors consider the radiation problem of an aperture on a **dielectric**-coated perfectly **conducting** cylinder. The **aperture** is modeled by an infinite line source. The modeling follows the approach of R. Paknys (1985). In the experimental study, a longitudinal X-band slot (8-12 GHz) was set on the conducting surface of the cylinder. Theoretical results are in good agreement with the experimental ones except for the oscillations present in the numerical results
CLASSIFICATION CODE:	B5260 Antenna theory; B5270B Single antennas
CONTROLLED TERM:	antenna radiation patterns
SUPPLEMENTARY TERM:	antenna radiation patterns; aperture; coated cylinder; radiation problem; dielectric-coated perfectly conducting cylinder; infinite line source; longitudinal X-band slot; 8 to 12 GHz
PHYSICAL PROPERTIES:	frequency 8.0E+09 to 1.2E+10 Hz